Global Engage

5TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM: USA

COLLABORATIONS IN MICROBIOME RESEARCH, LIVE BACTERIAL THERAPEUTICS, HUMAN HEALTH & DISEASE

2nd PROBIOTICS CONGRESS: USA

IDENTIFICATION, DEVELOPMENT & DELIVERY OF PROBIOTICS AND PREBIOTICS IN HUMAN HEALTH

SAN DIEGO, USA

NOVEMBER 2-3 2017

#GEMB17

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Global Engage

Global Engage is pleased to announce, as part of their worldwide microbiome series, the **5th U.S. Microbiome R&D and Business Collaboration Forum** and co-located **2nd Probiotics Congress** which will be held on November 2-3, 2017 in San Diego. The congress which attracted over 350 attendees in 2016 is the sister meeting to both the European and Asian Congresses held in Amsterdam and Hong Kong which bring together an even-split of industry and academic delegates to discuss the latest microbiome science, the development of partnerships and commercial collaborations in this area and the growth of product pipelines.

An increasing awareness of the importance of the role different bacterial ecosystems play with regards to human and animal health has led to a surge in research, publications and companies coming out of the microbiome and probiotic space. As changes in our lifestyle and the growth of multi-drug resistant bacterial strains have also increased the need for better solutions and management of chronic and life-threatening illnesses, microbiome and probiotic research is one of the most scientifically important and potentially lucrative avenues to be exploring. There is mounting evidence that selected probiotic strains can confer health benefits to us especially in digestive diseases and paediatric health and the first microbiome-based drugs will be headed to market in the next few years.

Attracting over 400 attendees, the 12th meeting in the global series will build upon the success of last year's meeting as well as our highly popular European and Asia forums to explore the interface between our evolving cultures, technologies and our microbiome through a series of interactive presentations with leading academics and industry experts, panel discussions, roundtable discussions and an exhibition area allowing solution providers to showcase their products and services. The Global Engage series is rapidly gaining a fantastic reputation as the number one microbiome networking event for fostering partnerships across academia, pharma and biotech. If looking to either learn more from the top scientists in the microbiome and probiotic space; showcase exciting developments in your research; or seek partnerships and funding within the industry; it is a congress not to be missed!

EXPERT SPEAKERS Include:

TIM LU
Associate Professor in the Department of Electrical Engineering and Computer Science, MIT

SARKIS MAZMANIAN
Louis & Nelly Soux Professor of Microbiology, California Institute of Technology

LATA JAYARAMAN
Senior Director, Seres Therapeutics

ROB KNIGHT
Professor of Pediatrics and Computer Science & Engineering, University of California San Diego

SUMMARY

- +60 presentations from industry and academic leaders
- +7 hours of dedicated networking time
- 6 expert-led roundtable discussions
- 3 extended senior-level interactive panel discussions
- Showcasing the latest start-ups
- Fall sun in beautiful San Diego

GUT MICROBIOME

- Gut microbiome in health and disease
- Pharma and biotech drug development – bugs as drugs
- Microbiome and cancer
- Interventions in the microbiome – probiotics/phage/FMT/ synthetic biology
- Research in obesity, cardio-metabolic disease, IBD,MS, allergy, metabolic disease, autoimmune disorders & more
- Utilizing microbiome data sets

OUTSIDE THE GUT

- Skin microbiome - acne, eczema, atopic dermatitis, probiotics, wound health & cosmetic applications
- Women's health – host-interactions, vaginal microbiome, preterm birth and pregnancy progression
- Gut-brain axis – signalling, links to disease and behaviour
- Oral and respiratory microbiome research

COMMERCIALIZATION OF THE MICROBIOME

- Venture capital and funding options
- Pharma and biotech case studies and strategies
- Partnering across the microbiome field – industry/academia
- Development, application & acquisition of technology platforms within the microbiome space
- Regulatory compliance
- Intellectual property considerations and protection
- Drug target validation and candidate selection
- Preclinical modelling
- Translational research
- How to develop microbiome start-ups
- Consumer markets v therapeutic markets

PROBIOTICS AND PREBIOTICS

- Probiotics and digestive health
- Probiotics in paediatrics
- Regulation and product development
- Strain identification, screenings and safety
- Delivery methods and encapsulation
- Regulatory considerations and quality control
- Case studies of pro- and prebiotic effects on human health
- Role of human milk oligosaccharides
- Commercializing pro- and prebiotic research

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BLIS Technologies

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PHASE GENOMICS

TIMOTHY LU
Associate Professor in the Department of Electrical Engineering and Computer Science, MIT

HENRIK BJØRN NIELSEN
Chief Scientific Officer, Clinical-Microbiomics

LATA JAYARAMAN
Senior Director, Seres Therapeutics

KEN BLOUNT
Head of External Research, Rebiotix

YORICK TROMP
Product Manager, Winclove Probiotics

SONIA MICHAIL
Professor of Clinical Pediatrics, University of Southern California

FREEK LAMBOO
Process Engineer, SynCo Bio Partners

MALCOLM KENDALL
Founder & CEO, Microbiome Insights

FRANK SCHUREN
Senior Scientist Microbiology, TNO Research

STANLEYSON HATO
Consultant Immunology, Triskelion, The Netherlands

HENRY RATH
Senior Vice President, Head of Corporate Development, Seres Therapeutics, Inc

CHRISTINE SPENCER
Senior Research Data Analyst, University of Texas MD Anderson Cancer Center

ROB KNIGHT
Professor of Pediatrics and Computer Science & Engineering, University of California San Diego

SONIA TIMBERLAKE
Director of Data Science, Finch Therapeutics

SARKIS MAZMANIAN
Louis & Nelly Soux Professor of Microbiology, California Institute of Technology

DARIO GUTIERREZ
(Track Chair)
Immuno-Biology Lead, Merck Research Laboratories

MIKE STEP
CEO, Ritter Pharmaceuticals

PIERRE BELICHARD
CEO, Enterome

CHRISTINE PIERCE
Assistant Member, Cancer Epidemiology, Moffitt Cancer Center

CHERYL CHOW
Bioinformatics Scientist, Second Genome

SERGIO BARANZINI
Professor, Department of Neurology, University of California, San Francisco

ILANA BRITO
Assistant Professor, Department of Biomedical Engineering, Cornell University

MOHAN IYER
Chief Operating Officer, Whole Biome

DAVID DONABEDIAN
Co-Founder & CEO, Axial Biotherapeutics

MICAH MACKISON
Senior Vice President, Corporate Development & Strategy, Assembly Biosciences, Inc.

MICHAEL BAILEY
Associate Professor, Pediatrics, The Ohio State University

STEPHANIE ROBERTSON
Senior Director, Scientific Innovation, Consumer at Johnson & Johnson Innovation

JOHN SLATTERY
Director of Research & Innovation, Aces Health Inc. Atlanta, GA

JESSICA SCHNEIDER
Associate Scientific Director, Microbiome Research, Takeda Pharmaceuticals

BILL MOHN
Professor, Department of Microbiology & Immunology, University of British Columbia

AARON DEL DUCA
Vice President of Technology, DNA Genotek

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Director, Business Development, Second Genome

JACK GILBERT
Chairman, Scientific Advisory Board. Aces Health, Inc.

ADELA RAMBI GUANCO CARDONES
Assistant Professor of Dermatology, Duke University

SUSAN SMITH
Head of Immunology, Dermatology Therapy Area, GlaxoSmithKline

LADA RASOCHOVA
(Track Chair)
CEO, Dermala Inc.

JASMINA AGANOVIC
President, Mother Dirt

TREVOR STEYN
CEO, ESSE Probiotic Skincare

CHRIS CALLEWAERT
Postdoctoral Scholar, University of California, San Diego/Founder of "Dr. Armpit"

MUN SU RHEE
Associate Director of R&D, Xycrobe Therapeutics, Inc

ALEX STEVENSON
Chief Scientific Officer, 4D Pharma

TRAVIS WHITFILL
Co-Founder & CSO, Azitra Inc.

BENJAMIN LELOUVIER
Chief Science Officer, Vaiomer

EMMA TAYLOR
Chief Executive Officer & Co-Founder, Naked Biome

BONNIE FELDMAN
(Track Chair)
Digital Health Analyst and Chief Growth Officer, DrBonnie360 – Your Autoimmunity Connection

PETER CHRISTEY
CEO, General Automation Lab Technologies

MACIEJ CHICHLOWSKI
Principal Scientist, Mead Johnson Nutrition

MELANIE GAREAU
Assistant Professor, University of California, Davis

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Expertise Group Leader Microbiomics, NIZO

ERIK SPEK
Vice President – Head of Intellectual Property, Vedanta Biosciences

NIKOLE KIMES
Co-Founder & Vice President, Siolta Therapeutics

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Assistant Professor of Surgery, College of Medicine, Mayo Clinic

PETER LEE
Founder & Executive Chairman, Osel inc.

BURKHARD JANSEN
Chief Medical Officer, DermTech Inc.

FANNY TENG
Senior Study Director, Metabolon

STEPHEN WOODY
Chief Executive Officer, Avadim Technologies

NUR HASAN
Vice President, CosmosID

MAGALI MOREAU
Associate Principal Scientist, L'Oréal Research & Innovation

ANURAG PANDE
Vice President – Scientific Affairs, Sabinsa Corporation

MARIA MARCO
(Track Chair)
Associate Professor, Food Science and Technology, University of California, Davis

YUYING LIU
Associate Professor, Department of Pediatrics University of Texas

LUIS VITETTA
Director of Medical Research, Medlab Clinical/Professor, University of Sydney, Australia

JAN PETER VAN PIJKEREN
Assistant Professor, Department of Food Science, University of Wisconsin-Madison

MATT RICHARDSON
Manager of Pharmaceutical Business Development, Capsugel

ULRICH KULOZIK
Professor & Chair of Food and Bioprocess Engineering, Technical University of Munich, Germany

JENNIFER BOYD
Regulatory Manager Human Health & Nutrition - US, Canada & Latin America, Chr. Hansen

ASHTON JAMES HARPER
Head of Medical Affairs, Protexin Human Healthcare

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Executive Science Officer, International Scientific Association for Probiotics and Prebiotics

BUFFY STAHL
Genomics and Microbiome Science Leader, DuPont Nutrition & Health

PAUL COTTER
Head of Department, Food Biosciences, Teagasc, and PI, APC Microbiome Institute, Republic of Ireland

MORGANE MAILLARD
International Product Manager, Lallemand Health Solutions, Canada

LEE MADSEN II
Vice President & Chief Science Officer, ISOThrive

TIFFANY WEIR
Associate Professor, Colorado State University

JOSE ANTONIO CRUZ
(Track Chair)
Chief Executive Officer, Kurago Biotek, Mexico

MONIQUE LACROIX
Professor & Director, Research Laboratories in Sciences, INRS-Institut Armand-Frappier, Canada

SARAH O'FLAHERTY
Senior Research Scientist, Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University

JISOO PAE
CEO, Genome and Company, Republic of Korea

BRAD SAVILLE
Chief Science Officer & Founder, Prenexus Health

BOB RASTALL
Professor of Food Biotechnology, University of Reading, UK

MICHELLE ALFA
CEO, AlfaMed Consulting

PERNILLE MYERS
Bioinformatics Specialist, Clinical-Microbiomics

COLLEEN CUTCLIFFE
CEO & Co-Founder, Whole Biome Inc.

08:00-08:45 | Room: Sunset Ballroom 3&5 | Registration & Refreshments

Room: Mission Bay

GUT MICROBIOTA IN HEALTH & DISEASE

08:45-08:50 **Global Engage Welcome Address and Morning Chair's Opening Remarks**

08:50-09:30

KEYNOTE ADDRESS:
ROB KNIGHT
Professor of Pediatrics and Computer Science & Engineering, University of California San Diego

American Gut Project Citizen Science: 10,000 Participants

- Use crowdsourcing and crowdfunding to obtain microbiome from over 10,000 citizen scientists
- FFQs and metabolomics allow detailed exploration of interactions between the diet, microbiome, and metabolome
- Results reveal unexpected links between the microbiome, drugs, sleep, exercise, and many other factors, as well as the incredible variety of human responses to the same input
- Understanding limits of microbiome variation allow us to start steps to reshape our microbiome through diet, drugs and other means to maintain lifelong health

09:30-09:55

TIMOTHY LU
Associate Professor in the Department of Electrical Engineering and Computer Science, MIT

Engineering the Microbiome

Synthetic biology is enabling more precise strategies for modulating the human microbiome, both in terms of adding microbes with artificial functions as well as deleting targeted microbiome members. Here we will discuss technology platforms for microbiome engineering and clinical applications being pursued.

09:55-10:25

SPONSORED PRESENTATION:
HENRIK BJØRN NIELSEN
Chief Scientific Officer, Clinical-Microbiomics

Platforms for Microbiome Systems Biology

- High-resolution Microbiomics – the Metagenomic Species and Beyond
- Imputing from shallow to deep shotgun sequenced metagenomics with < 1% information loss
- Functional Species Concept – overcoming Ecological Complexity and Redundancy

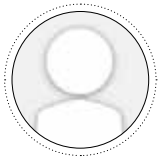
clinical microbiomics

Room: Garden

PROBIOTICS CONGRESS

08:45-08:50 **Global Engage Welcome Address and Morning Chair's Opening Remarks**

08:50-09:30



KEYNOTE ADDRESS:
SENIOR REPRESENTATIVE (Reserved)
International Probiotics Association
Title TBC

09:30-09:55

JENNIFER BOYD
Regulatory Manager Human Health & Nutrition - US, Canada & Latin America, Chr. Hansen

Regulatory Overview of Probiotics in the Americas: Concerns & Challenges

With probiotics being one of the top trending ingredients globally and the microbiome space being explored at an increasingly rate; it's important to understand the regulatory environment in which we need to operate. An overview of the regulatory space in the Americas; what's happening? What challenges do we face? What are some of the activities industry is engaging in?

09:55-10:25

SPONSORED PRESENTATION:
ANURAG PANDE
Vice President – Vice President – Scientific Affairs, Sabinsa Corporation

Streaming live- Probiotics in functional foods

In space of Probiotics, spore forming lactic acid producing bacteria have made a space of their own, owing to their stability, flexibility and efficacy in dietary supplements and more importantly functional nutritional products. Today we can take probiotics in variety of food products due to ease of formulation, lesser losses in processing and longer shelf life. As a spore forming and lactic acid producing bacteria, Bacillus coagulans MTCC5856 has been well studied for its formulation capabilities as well as its efficacy. In this presentation, we will look into some of the studies which were carried out on Bacillus coagulans MTCC5856 or LactoSpore for its stability in variety of foods and look into examples of products in various categories where the LactoSpore was formulated.

SABINSA

10:25-11:35 | Room: Sunset Ballroom 3&5 | Morning Refreshments / Poster Presentations / Scheduled One-to-One Meetings

Room: Mission Bay

GUT MICROBIOTA IN HEALTH & DISEASE

TRACK CHAIR: JESSICA SCHNEIDER
Associate Scientific Director, Microbiome Research, Takeda Pharmaceuticals

11:35-12:00

LATA JAYARAMAN
Senior Director, Seres Therapeutics

Ecobiotic Drugs – A New Paradigm for Drug Discovery

- The gut microbiota are critical players that modulate a variety of host functions including barrier integrity, mucosal immune homeostasis, bile acid metabolism, prevention of infestation by pathogens and cancer.
- At Seres, we are committed to creating a new class of medicines to treat diseases resulting from functional deficiencies in the microbiome, a condition known as dysbiosis. We are a clinical biopharmaceutical company with a powerful platform to discover and develop drugs to treat diseases in multiple areas of medicine that arise from dysbiosis.
- We pinpoint functional differences between a healthy and dysbiotic microbiome, and rationally design potential Ecobiotic drugs. These therapeutics are ecological compositions made up of beneficial organisms that are designed to target functional deficiencies and re-establish keystone features of a healthy microbiome.

12:00-12:25

STEPHANIE ROBERTSON
Senior Director, Scientific Innovation, Consumer at Johnson & Johnson Innovation

Leveraging Partnerships to Harness the Potential of the Microbiome

The microbiome is experiencing notable activity across therapeutics, diagnostics and consumer health, presenting tremendous opportunities to transform healthcare. However, the field is also facing obstacles across the R&D continuum, including regulation, manufacturing and computational challenges. There's an opportunity to engage industry stakeholders – from entrepreneurs and researchers to investors and pharmaceutical companies – to work together and translate promising science into microbiome-based health solutions for a range of disease areas.

Room: Dockside

R&D OUTSIDE THE GUT

TRACK CHAIR: TRAVIS WHITFILL
Co-Founder & CSO, Azitra Inc.

11:35-12:00

ADELA RAMBI GUANCO CARDONES
Assistant Professor of Dermatology, Duke University

The Cutaneous Microbiome in Immune Mediated Skin Disorders: Promises and Challenges

- Aberrations in the cutaneous microbiome have been implicated in the pathogenesis of chronic, immune mediated skin diseases.
- Techniques that restore microbial homeostasis or diversity of the cutaneous microbiota have been proposed as therapeutic options.
- There are real challenges, but also opportunities, in designing and executing studies that involve the cutaneous microbiome.

12:00-12:25

TRAVIS WHITFILL
Co-Founder & CSO, Azitra Inc.

"Bugs as Drugs" for the Skin: Live Biotherapeutic Products to Treat Skin Diseases

The skin microbiome plays a fundamental role in human health, protecting against pathogens and antigens while bolstering cutaneous immunity. Imbalances in the skin microbiome (i.e. "dysbiosis") are highly associated with severity of skin disease, and research shows that improving the skin microbiome may be a promising approach to treating disease. Novel strategies have emerged to harness the skin microbiome to treat a plethora of diseases. Azitra is developing "bugs as drugs," or live biotherapeutic products, for the skin and has a platform that uses healthy skin bacteria to deliver therapeutic proteins to the skin for therapeutic treatment.

Room: Garden

PROBIOTICS CONGRESS

TRACK CHAIR: MARIA MARCO
Associate Professor, Food Science and Technology, University of California, Davis

11:35-12:00

YUYING LIU
Associate Professor, Department of Pediatrics University of Texas

Resetting microbiota by *Lactobacillus reuteri* inhibits Treg deficiency-induced autoimmunity

Regulatory T-cell (Treg) deficiency causes lethal, CD4+T cell-driven autoimmune diseases. Foxp3+Treg deficiency results in gut microbial dysbiosis over the lifespan of scurfy (SF) mouse. Remodeling microbiota with L. reuteri prolonged survival and reduced multi-organ inflammation in SF mice. L. reuteri changed the metabolomic profile with a major effect was to restore levels of the purine metabolite inosine. Feeding inosine prolonged life and inhibited multi-organ inflammation by reducing Th1/Th2 cell associated cytokines. The inhibition of inosine on the differentiation of Th1 and Th2 cells in vitro depended on adenosine A2A receptors, which were also required for the efficacy of inosine and of L. reuteri in vivo. The study reveals that the Lactobacili-microbiota-inosine-A2A axis might represent a potential avenue for combatting autoimmune diseases mediated by Treg dysfunction.

12:00-12:25

LUIS VITETTA
Director of Medical Research, Medlab Clinical/ Professor, University of Sydney, Australia

The effect of a novel probiotic on metabolic biomarkers in adults with prediabetes and recently diagnosed type 2 diabetes mellitus: a randomized controlled trial

- T2DM is characterised by persistent low-grade inflammatory responses associated with the development of insulin resistance.
- Variations in the type, diversity and metabolic capacity of the gastrointestinal microbiota have been shown to alter metabolic and inflammatory pathways within the host by shifting energy balance and storage and promoting metabolic endotoxaemia.
- An evidence-based multi-species probiotic formulation was investigated postulated to shift the GI microbiome from a disease-prone to a balanced state and in turn improving metabolic markers associated with T2DM.

12:25-12:50

SONIA MICHAIL

Professor of Clinical Pediatrics, University of Southern California

Modification of the Pediatric Gut Microbiome: Past, Present and Future

- The role of the pediatric gut microbiome in health and disease
- Effective ways to modify the gut microbiome
- Fecal microbial transplant and how it impacts the gut microbiome

12:00-12:25

SUSAN SMITH

Head of Immunology, Dermatology Therapy Area, GlaxoSmithKline

The Promise and Challenge of Applying Microbiome Research to Drug Discovery

- Commensals and inflammation
- Appreciating cause and effect
- Practical applications

12:00-12:25

JAN PETER VAN PIJKEREN

Assistant Professor, Department of Food Science, University of Wisconsin-Madison

Development of Lactobacillus reuteri as a therapeutic delivery platform

One of the long-term goals of the Van Pijkeren Laboratory is to develop probiotic bacteria as therapeutic delivery vehicles. The health-promoting phenotypes, the long history of safe consumption, combined with the ability to survive passage through the mammalian gastrointestinal tract, make select probiotic strains excellent candidates to deliver therapeutics in situ. Our model organism is Lactobacillus reuteri(Lr), a gut symbiont with well-characterized probiotic characteristics. Lr is also one of few probiotic strains for which high-throughput genome editing tools are available. We will discuss the development of various genetic tools for use in Lr, and its applications towards the development of a therapeutic delivery vehicle.

12:50-1:20

SPONSORED PRESENTATION: JOHN SLATTERY

Director of Research & Innovation, Aces Health Inc. Atlanta, GA

JACK GILBERT

Chairman, Scientific Advisory Board. Aces Health, Inc.

The Exposome and the Microbiome: The case and need for better data collection and analysis through software automation

- In this talk I will discuss the power of mHealth technology and Aces Health as a centralized data collection and repository hub for clinical trials.
- We will discuss factors that alter the microbiome from the Environment (ie the Exposome) and how we can leverage software and technology advancements to better understand and detect factors affecting the microbiome in clinical trials and natural history/longitudinal studies to better understand microbiome disruption in relation to disease pathogenesis
- Biomarker and metabolomics considerations will be discussed and considered in relation to the Exposome and Microbiome
- Finally, this presentation will discuss the power of Aces Health's automated collection of environmental factors that have been linked to microbiota and microbiome disruption with a focus on CNS disorders and how we can normalize and quantify these factors in real time during trials involving microbiome therapeutics and/or modulators

12:50-1:20

SPONSORED PRESENTATION: STEPHEN WOODY

Chief Executive Officer, Avadim Technologies

The Emerging Revolution in Infection Prevention Through Topical Microbiome Management

Until now, infection prevention has been focused on decontamination and eradication of ALL microorganisms on the skin. What if this approach was outdated, not working for all populations around the world? The new 21st century approach to reducing hospital-acquired infections revolves around optimizing the patient's skin immunology. Specifically, this session will address deficiencies in the old paradigm of decolonization for infection prevention and highlight the new paradigm of microbiome management. The microbiome of the skin and associated tissue are key to establishing and maintaining a balance of healthy flora on the skin, resulting in an appropriate way to manage the infections that plague hospitals around the globe. This approach, and Avadim's Theraworx therapies, have been effective in America, attaining reductions of between 50% to 90% in CAUTI levels, and reductions up to 50% in CLABSI rates as well as efficacy against MRSA and c.Diff levels in hospitals and LTC facilities.

12:50-1:20

SPONSORED PRESENTATION: BOB RASTALL

Professor of Food Biotechnology, University of Reading, UK

Targeted Synbiotics to Manipulate the Microbiome for Health

As we learn more about the human gut microbiome and its functions in the context of health, we will undoubtedly identify new target bacteria for prebiotic intervention. Currently we have only a few dietary tools that fully comply with the definition of a prebiotic as 'a substrate that is selectively utilized by host microorganisms conferring a health benefit' (ISAPP consensus definition, Gibson et al. 2017). These are the fructans, inulin and oligofructose, and galacto-oligosaccharides. There are, however, many more carbohydrates that can be considered as candidate prebiotics that do not yet have a convincing body of evidence of human health benefits. There is clearly potential for discovery of novel and desirable selectivity among the various carbohydrates and polyphenols available for investigation. A synbiotic is a combination of a prebiotic and a probiotic. This can either be a complementary synbiotic where each component is independently chosen for its effect on host health or a synergistic synbiotic where the prebiotic component is chosen to support the activity of the chosen probiotic. Most synbiotics studied to date have been mixtures of readily available carbohydrates and commercial probiotics, often driven by ease of availability. A more rational approach is to screen candidate carbon sources to support the growth of the desired target organism and expression of any biomarkers relevant to the desired health outcome. This can be taken further by utilising the metabolic machinery of a target organism to generate an oligosaccharide mixture that is highly metabolisable by that producing strain. Such a mixture might

12:50-1:20

Continued from Previous Page

12:50-1:20

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12:50-1:20

be considered to be an optimised synbiotic, sometimes known as an optibiotic. This concept works particularly well with the galacto-oligosaccharides as these are complex mixtures with the structural profile mapping onto the substrate specificity of the b-galactosidases that were used in their manufacture. This presentation will explore this concept in more detail and show how this approach has been used in the rational development of a synbiotic designed to reduce cholesterol.

OptiBiotix HEALTH PLC
BETTER SCIENCE, BETTER HEALTH

1:20-2:20 Lunch

Room: Mission Bay

GUT MICROBIOTA IN HEALTH & DISEASE

TRACK CHAIR:

2:20-2:50

SPONSORED PRESENTATION:
YORICK TROMP
Product Manager, Winclove Probiotics

Developing microbiota management solutions for unmet medical needs

The intestinal microbiota plays a role in metabolic, nutritional, physiological and immunological processes in the human body. The collective genome of the intestinal microbiota outnumbers our human genes. Major recent efforts have been made to better understand the complexity, diversity, and function of this "extra organ", especially with respect to metabolism. Numerous pathways involved in the metabolism of energy, amino acids, carbohydrates and vitamins have been found to be associated in the microbiota, and it has been shown that these pathways influence human health. A more detailed understanding of what certain bacteria can actually do in the gut, gives rise to the possibility to target these processes in very direct ways. Screening the bacterial strains on these functionalities is a powerful tool to develop probiotic products which can provide a solution for unmet medical needs.

WINCLOVE PROBIOTICS

Room: Dockside

R&D OUTSIDE THE GUT

TRACK CHAIR: LADA RASOCHOVA
CEO, Dermala Inc.

2:20-2:50

PANEL DISCUSSION:

The Microbiome: An Opportunity for Smarter Cosmetics

- Impact of the microbiome on traditional products, and on marketing campaigns
- Integrating smart bacteria into products
- Impact of products on commensal skin flora
- Accounting for diversity and age
- Health claim substantiation and regulatory considerations

JASMINA AGANOVIC
President, Mother Dirt

TREVOR STEYN
CEO, ESSE Probiotic Skincare

CHRIS CALLEWAERT
Postdoctoral Scholar, University of California, San Diego/Founder of "Dr. Armpit"

L'ORÉAL

MAGALI MOREAU
Associate Principal Scientist, L'Oréal Research & Innovation

Room: Garden

PROBIOTICS CONGRESS

TRACK CHAIR:

2:20-2:50

SPONSORED PRESENTATION:
MATT RICHARDSON
Manager of Pharmaceutical Business Development, Capsugel

Cross-Functional Delivery Innovations for Probiotics and Microbiome

The race to commercial activity in the human microbiome area was triggered following a 2014 publication of a study showing that patients suffering from Clostridium Difficile (C. Diff) infections could be cured by orally taking delayed-release capsules of frozen feces from healthy matched donors. Since then, advancement and evolution of delivery systems in this area has accelerated into the commercial R&D and clinical space. Join Dr. Matt Richardson as he explores the origins and evolution of innovative enteric delivery systems for both probiotics and emerging products for the human microbiome.

Capsugel
Now a Lonza Company

2:50-3:15

KEN BLOUNT

Head of External Research, Rebiotix

Bugs as Drugs: Creating Microbiota Based Drugs with Quality Science

Research and business around the microbiome continues to rapidly expand. There are currently many institutions and companies looking at various ways to utilize bugs as drugs. More science and quality parameters are being developed to create, manufacture and commercialize these new and unique medicines to treat various diseases of the microbiome. Microbiota Restoration Therapy (MRT) is one example of a new and novel way to provide bugs as drugs utilizing Science and Quality.

3:15-3:40

JESSICA SCHNEIDER

Associate Scientific Director, Microbiome Research, Takeda Pharmaceuticals

Prioritizing Indications for Microbiome Therapeutics: Where do we go after *C. difficile* and UC?

- Identifying the Next Priority Indications for Microbiome Therapeutics
- Understanding and Expanding the Causality Toolkit for Microbiome Drug Discovery
- Selecting Patients: Will Companion Diagnostics Be the Key?

2:50-3:15

MUN SU RHEE

Associate Director of R&D, Xycrobe Therapeutics, Inc

Synthetic Biology Approach to Treatment of Skin Issues via Microbiota

- Exploring possible deficiencies in microbiome-centric strategies for treating inflammatory issues
- Reviewing similarities between the gut and skin and how we can translate microbiome therapies accordingly
- Discussing use of the microbiota to optimize topical delivery of biotherapeutics

3:15-3:40

EMMA TAYLOR

Chief Executive Officer & Co-Founder, Naked Biome

Challenges in Developing a Live Biologic Therapeutic

- Strain selection
- Intellectual Property
- Rx vs DTC
- Manufacturing
- Formulation
- Regulatory strategy
- Clinical Trial

2:50-3:15

ULRICH KULOZIK

Professor & Chair of Food and Bioprocess Engineering, Technical University of Munich, Germany

Preservation of the vitality of probiotics during processing and protection against environmental stress by encapsulation

- Drying of microbial starter cultures and probiotics for preservation and storage purposes can be optimized in terms of survival
- The reduction of drying times can be achieved by microwave technology applied to accelerate freeze drying and vacuum drying, without compromising on degree of survival and activity upon rehydration. The key insights of recent works are currently being applied in drying of the human gut microbiome and representative surrogates. The dried material can be used as part of a concept of treatment of patients with a disturbed microbiome.
- Sensitive probiotics can be protected against outer environmental and processing stress factors in very dense protein encapsulation matrices

3:15-3:40

SARAH O'FLAHERTY

Senior Research Scientist, Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University

Building and exploiting the genetic engineering toolbox in lactobacilli

- Overview and update of molecular tools in the CRISPR era
- Using these tools to understand and enhance colonization
- Applying these tools to build a lactobacilli vaccine platform

3:40-3:55

COMPANY SHOWCASE:
FREEK LAMBOO
Process Engineer, SynCo Bio Partners
Human Microbiota: Proof of Concept to Production

- General overview of live microbial production processes
- Step by step process description with emphasis on process development
- Considerations prior/during tech transfer focusing on specific requirements for pharma (GMP) production

SynCo Bio Partners

3:40-3:55

COMPANY SHOWCASE:
BURKHARD JANSEN
Chief Medical Officer, DermTech Inc.
An Adhesive Patch Device for Skin Microbiome Studies

Our understanding of the skin-residing microbiome on skin health has improved dramatically in recent years, and diagnostic or therapeutic applications based on the skin microbiome are starting to emerge. Progress has been hampered by deficiencies in obtaining skin microbiome samples of sufficient quality and quantity. A noninvasive adhesive patch device is capable of reliably obtaining sufficient amounts of micro biome samples which may open opportunities to use this new tool in a variety of clinical applications. The adhesive patch allows us to collect and study microbiome samples from the deeper epidermal layers and not not just those on the skin surface. The unique advantages this adhesive patch offers may benefit clinical applications including: investigating and assessing skin microbiome compositions and populations and assessing and monitoring skin cell gene expression signatures.

DermTech

3:40-3:55

COMPANY SHOWCASE:
ASHTON JAMES HARPER
Head of Medical Affairs, Protexin Human Healthcare
IBS and Probiotics: From Mechanisms to Clinical Evidence

- Pathophysiology of IBS
- The relationship between IBS and gut bacteria
- Probiotic mechanisms for the prevention and treatment of IBS symptoms
- Review of probiotics in IBS human clinical trials
- Future perspectives

Bio-Kult® The experts in probiotics

3:55-4:45 Afternoon Refreshments / Poster Presentations / Scheduled One-to-One Meetings

GUT MICROBIOTA IN HEALTH & DISEASE

TRACK CHAIR: BONNIE FELDMAN
Digital Health Analyst and Chief Growth Officer, DrBonnie360 – Your Autoimmunity Connection

R&D OUTSIDE THE GUT

TRACK CHAIR: JACK BEARD
Conference Producer, Global Engage

PROBIOTICS CONGRESS

TRACK CHAIR: WILLIAM BAIRD
Director, Global Engage Ltd.

4:45-5:00

COMPANY SHOWCASE: FRANK SCHUREN

Senior Scientist Microbiology, TNO Research

TNO and Triskelion's long term experience with in vitro intestinal models (TIM) has been combined with microbiome models and technologies. Microbiome data obtained from human samples (from various organs) are analyzed by advanced bioinformatics approaches including machine learning. This combination of expertise and underlying research has resulted in unique in vitro models. These include the i-screen platform mimicking intestinal microbiota composition in a medium throughput format and the TIM2 model which is a more controlled in vitro model mimicking intestinal physiology. These models are increasingly used for pharmaceutical development including metabolite profiling. In combination with InTESTine, organ-on-a-chip and intestinal organoid technologies TNO and Triskelion can offer tailor made solutions to your specific research question related to microbiome. Applications of these technologies in the immunology (e.g. IBD), immuno-oncology and infectious diseases are in progress.

TNO

5:00-5:15

COMPANY SHOWCASE: STANLEYSON HATO

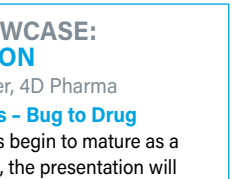
Consultant Immunology, Triskelion, The Netherlands

In vitro and in vivo models to accelerate development of microbiome-based therapeutics

Triskelion is a premium contract research organisation dedicated to improving and safeguarding people's health and vitality by ensuring the quality, efficacy and safety of food, pharmaceutical and chemical products. In this capacity, we provide many services to assess the safety, and efficacy of novel pharmaceuticals including novel microbiome modulators. One of these services is our TIM-2 technology, which is an in vitro model for the large intestines. TIM-2 can be used to study the effects of microbiome modulators on healthy microbial composition and activity. Vice versa, the effect of the microbiota on a test compound can also be studied. In addition, the microbiota present in TIM-2 can be inoculated with specific bacteria, e.g. pathogens, which are being targeted. This provides the perfect, physiological environment to test the activity, efficacy and specificity of microbiome modulators

TRISKELION

4:45-5:15



COMPANY SHOWCASE: ALEX STEVENSON

Chief Scientific Officer, 4D Pharma

Live Biotherapeutics – Bug to Drug

As live biotherapeutics begin to mature as a new class of medicine, the presentation will discuss progress made in the understanding of:

- The mechanisms by which live biotherapeutics are able to impact disease
- The potential of the microbiome to diagnose and stratify patients
- How live biotherapeutics can be manufactured as regulated biological products
- Strategies for the integration of live biotherapeutics into clinical practice

4D pharma plc

4:45-5:15

COLLEEN CUTCLIFFE

CEO & Co-Founder, Whole Biome Inc.

Using Microbiome Analytics to Drive Development of Interventions

- Generation of tools to analyze next generation sequencing, metabolite data and host-microbiome interactions data
- Integrating these with pathway predication tools to generate a comprehensive view of an individual's microbiome and identify novel targets
- Testing interventions and generating new data to drive improved development of diagnostics and interventions

4:45-5:10

BILL MOHN

Professor, Department of Microbiology & Immunology, University of British Columbia

Mechanisms by which the early life gut microbiome modulates the severity of asthma

Asthma has become the most common childhood disease in developed countries, with major social and economic consequences. The causes of asthma are complex and poorly understood, but growing evidence implicates dysbiosis of the gut microbiome in development of asthma. Previously, vancomycin was shown to cause gut dysbiosis resulting in an increased inflammatory response in a mouse model of asthma. In this study, early-life exposure of vancomycin-treated mice to butyrate, a metabolite of the gut microbiome, prevents the increased inflammatory response. The inflammatory and anti-inflammatory phenotypes could be transferred via bone marrow transplants and were associated with epigenetic programming predicted to regulate multiple immune pathways. Finally, shotgun metagenome analysis indicated that the fecal microbiome of three-month-old humans who later developed asthma had reduced genetic potential for butyrate production relative microbiomes of non-asthmatic controls.

5:40-6:05

CHRISTINE SPENCER

Senior Research Data Analyst, University of Texas MD Anderson Cancer Center

Title TBC

5:15-6:06

INDUSTRY & INVESTMENT ROUNDTABLE DISCUSSIONS:

TABLE 1:
MALCOLM KENDALL

Founder & CEO, Microbiome Insights

The Gut-Brain Link: How the Microbiome Effects Brain Health and Neurological Diseases

TABLE 2:
COLLEEN CUTCLIFFE

CEO & Co-Founder, Whole Biome Inc.

Balancing IP and Regulatory Risk in the Microbiome

RESERVED

TABLE 3:

Successful collaborations between academia and industry

TABLE 4:
SONIA TIMBERLAKE

Director of Data Science, Finch Therapeutics

Microbiome Product Strategies and Opportunities

See page 15 for full details of each talk

5:15-6:06

ROUNDTABLE DISCUSSIONS:

TABLE 5:
MARY ELLEN SANDERS

Executive Science Officer, International Scientific Association for Probiotics and Prebiotics

Consumers Deserve to Know What's in the Bottle

TABLE 6:
BOB RASTALL

Professor of Food Biotechnology, University of Reading, UK

Prebiotics: a view of the future

See page 15 for full details of each talk

6:05-7:05 End of Day One / Drinks Reception - If you would like to sponsor the drink's reception contact Gavin Hambrook at gavin@globalengage.co.uk

INDUSTRY & INVESTMENT ROUNDTABLE DISCUSSIONS:

TABLE 1:
MALCOLM KENDALL
Founder & CEO, Microbiome Insights
The Gut-Brain Link: How the Microbiome Effects Brain Health and Neurological Diseases

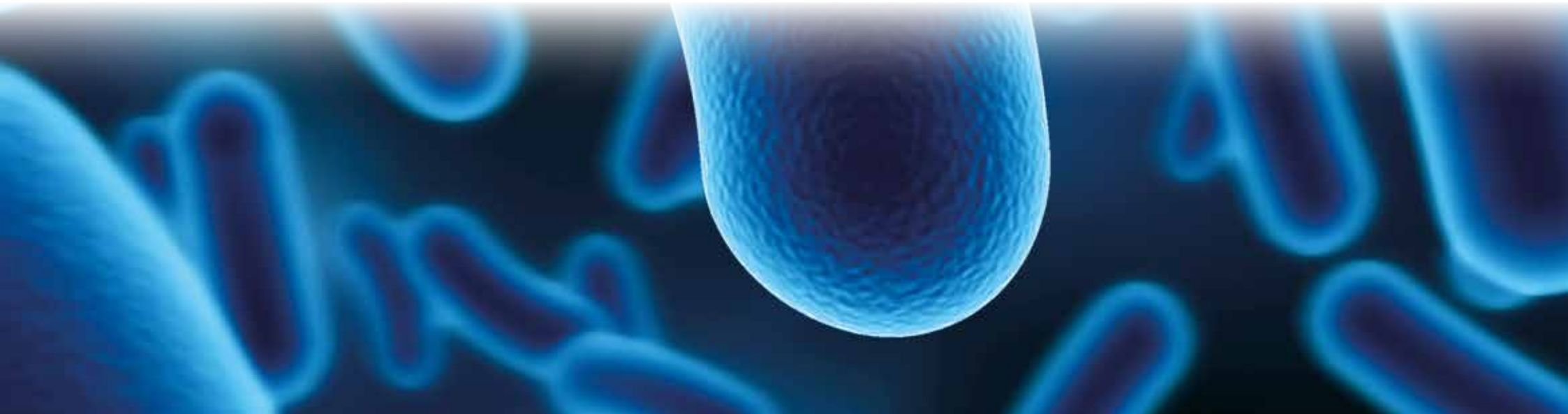
TABLE 2:
COLLEEN CUTCLIFFE
CEO & Co-Founder, Whole Biome Inc.
Balancing IP and Regulatory Risk in the Microbiome
As new microbiome-targeted products are being developed, companies must consider both their Intellectual Property and Regulatory strategies. For the "bugs as drugs" route, the ability to cover naturally occurring products has its limitations and historical defeats in the US patent office. Therefore, small molecules and genetically modified strains hold appeal in the ability to generate strong IP coverage. Almost conversely, the regulatory hurdles for small molecules and genetically modified organisms are much higher than for Generally Recognized as Safe (GRAS) and cosmetic products. Every company must decide which type of product is optimal in the current environment and make predictions for where the IP and regulatory landscapes will shift for the micro biome space. Additionally, some companies are attempting less traditional development paths towards identifying efficacious therapeutics. In this roundtable discussion, we will delve into how specific companies are addressing these two topics, which are ostensibly inversely related in some cases.

TABLE 3:
Successful collaborations between academia and industry
- Collaboration models
- Structuring successful collaborations
- Investments

TABLE 4:
SONIA TIMBERLAKE
Director of Data Science, Finch Therapeutics
Microbiome Product Strategies and Opportunities
- What are the comparative advantages of product strategy in terms of regulatory, manufacturing, clinical, and biological features?
- What specific risks do each carry?
- What regulatory or scientific questions, once answered, will enhance the competitiveness of each category?
- How should microbiome drug developers prioritize crowded disease areas with meaningful clinical data and many competitors versus 'white space' therapeutic areas with minimal data but less competition? What analogies can be drawn from other technologies?
- Besides drug developers, businesses in the microbiome space include informatics specialists, contract manufacturers, molecular characterization firms, etc. Which spaces offer unique opportunities for differentiation in product development or elsewhere? Which services will be important for drug developers to insource versus outsource?

TABLE 5:
MARY ELLEN SANDERS
Executive Science Officer, International Scientific Association for Probiotics and Prebiotics
Consumers Deserve to Know What's in the Bottle
- Taking probiotic product verification to the next level
- What options are out there?
- What are the roadblocks?
- When can consumers expect to see third party verification that probiotic products are what they claim?

TABLE 6:
BOB RASTALL
Professor of Food Biotechnology, University of Reading, UK
Prebiotics: a view of the future
There has been much recent debate over the definition of a prebiotic, culminating in the recent clarification and simplification of wording by ISAPP. Looking forward, what does the future hold for prebiotics? This round table discussion will address the following questions:
- Where will the next generation of prebiotics come from?
- How do we establish selective utilisation?
- Which microorganisms will we target in the future?
- Is it all just Short Chain Fatty Acids?
- What health impact will prebiotics have made in 10 years and in 20 years' time?



08:00-08:25 | Room: Sunset Ballroom 3&5 | Networking Meetings & Refreshments

08:25-08:30 **MORNING CHAIR'S OPENING REMARKS: DARIO GUTIERREZ,**
Immuno-Biology Lead, Merck Research Laboratories

Room: Mission Bay

GUT MICROBIOTA IN HEALTH & DISEASE

08:30-08:55

MICHAEL BAILEY
Associate Professor, Pediatrics, The Ohio State University

Examining the Impact of Stress on the Gut Microbiome

Exposure to stressful stimuli is known to affect both immune system reactivity to infectious challenge and microbial community composition in the intestines. Studies from this laboratory, as well as others, indicate that these phenomena are intimately linked. Data will be presented showing that the intestinal microbiota are involved in stressor-induced immunomodulation at local sites (such as the intestines) as well as systemic sites (such as the spleen and the brain). In addition, novel strategies to maximize the abilities of probiotic microbes, as well as commensal microbes, to attenuate the deleterious effects of stressful stimuli on host inflammatory responses in the intestines, spleen, and brain will be discussed.

08:55-09:35

KEYNOTE ADDRESS: SARKIS MAZMANIAN
Louis & Nelly Soux Professor of Microbiology, California Institute of Technology

The Gut-Microbiome-Brain Connection in Neurological Disease

The intestinal microbiota influences neurodevelopment, modulates behavior, and contributes to various neurological disorders. However, a functional link between gut bacteria and neurodegenerative diseases remains unexplored. Synucleinopathies are characterized by aggregation of the protein α-synuclein (αSyn), often resulting in motor dysfunction, as exemplified by Parkinson's disease (PD). Using mice that overexpress αSyn, we report herein that the microbiota are required for motor deficits, microglia activation, and αSyn pathology. Antibiotic treatment ameliorates, while microbial colonization promotes, pathophysiology in adult animals, suggesting disease arises from postnatal signaling between the gut and the brain. Indeed, oral administration of the microbial metabolites, short-chain fatty acids, to germ-free mice promotes neuroinflammation and motor symptoms. Remarkably, colonization of αSyn-overexpressing mice with microbiota from PD patients enhances physical impairments compared to microbiota transplants from healthy human donors. These findings reveal that gut bacteria potentiate numerous Parkinsonian-like features in a mouse model, and suggest that alterations in the human microbiome represent a novel risk factor for PD.

08:25-08:30 **MORNING CHAIR'S OPENING REMARKS: JOSE ANTONIO CRUZ,**
Chief Executive Officer, Kurago Biotek, Mexico

Room: Garden

PROBIOTICS CONGRESS

08:30-08:55

BUFFY STAHL
Genomics and Microbiome Science Leader, DuPont Nutrition & Health

Digital PCR for Strain-Specific Enumeration of Probiotics

08:55-09:35

KEYNOTE ADDRESS: PAUL COTTER
Head of Department, Food Biosciences, Teagasc, and PI, APC Microbiome Institute, Republic of Ireland

Health-Promoting Properties Encoded within Fermented Food Microbiota

- Putative health-promoting attributes associated of fermented foods
- Sequencing based insights into health-promoting genes encoded within such foods
- How to harness this knowledge?

Room: Mission Bay

GUT MICROBIOTA IN HEALTH & DISEASE

TRACK CHAIR: DARIO GUTIERREZ
Immuno-Biology Lead, Merck Research Laboratories

Room: Dockside

R&D OUTSIDE THE GUT

TRACK CHAIR:

Room: Garden

PROBIOTICS CONGRESS

TRACK CHAIR: JOSE ANTONIO CRUZ,
Chief Executive Officer, Kurago Biotek, Mexico

9:40-10:10

SPONSORED PRESENTATION: MIKE STEP

CEO, Ritter Pharmaceuticals

Pioneering Development in the Gut Microbiome for the Treatment of Lactose Intolerance

Ritter Pharmaceuticals, Inc. is a specialty pharmaceutical company developing therapeutics based upon colonic adaptation to treat gastrointestinal diseases with an initial focus on lactose intolerance. Colonic adaptation improves colon function by selectively increasing the growth of beneficial bacteria in the colonic ecosystem (digestive tract). Ritter Pharmaceuticals, Inc. is rapidly establishing itself as the world's leader in lactose intolerance research based upon its scientific team and their cutting edge research in this field. RP-G28, Ritter's lead product, has been studied in a Phase 2 trial and is a first-in-class compound. RP-G28 has the potential to become the first FDA-approved drug for the treatment of lactose intolerance, a debilitating disease which affects over 1 billion people worldwide.

9:40-10:10

SPONSORED PRESENTATION: PETER CHRISTEY

CEO, General Automation Lab Technologies

Enabling Access to Microbes - A Next Generation Platform for Exploring the Microbiome

General Automation Lab Technologies, Inc. (GALT) is transforming microbiome research and microbial product development with our innovative high throughput microbiology research platform. There is a critical need for new improved research tools to drive our understanding of complex microbial populations and their interactions with their environment. GALT is currently focused on solving two core problems in microbiology: 1) cultivating target microbes that are difficult or impossible to cultivate using current technologies, and 2) screening microbiomes, strain collections or engineered populations of microbes for target phenotypes or metabolites.

9:40-10:10

SPONSORED PRESENTATION: MORGANE MAILLARD

International Product Manager, Lallemand Health Solutions, Canada

Probiotics have spurred many hopes and promises thanks to their interactions with the brain-gut-microbiota axis. Lallemand Health Solutions has contributed to the field with mechanistic and clinical studies documenting specific benefits, including probiotics' role in modulating brain neuroplasticity and that the anxiolytic effect can be transferred between generations. Morgane Maillard, Product Manager at LHS, will lead us through the history of the Brain-Gut Axis research, from the early pioneers and in vivo mechanistic studies to the most recent clinical trials, in particular in healthy adults and new clinical outcomes on chronically depressed research participants.

10:10-11:20 | Room: Sunset Ballroom 3&5 | Morning Refreshments / Poster Presentations / Scheduled One-to-One Meetings

11:20-12:10

PANEL DISCUSSION:

The 'Oncobiome' - Human Microbiome and Cancer Therapies

- How does the microbiome influence/protect from cancer development?
- Microbiome interactions with cancer therapies
- How does the microbiome impact cancer development in sites outside the gut?
- Manipulating the microbiome to improve prognosis and treatment
- Development of immune-microbiome cancer therapies

PIERRE BELICHARD

CEO, Enterome

CHRISTINE PIERCE

Assistant Member, Cancer Epidemiology, Moffitt Cancer Center

CHRISTINE SPENCER

Senior Research Data Analyst, University of Texas MD Anderson Cancer Center

11:20-11:45

MACIEJ CHICHLOWSKI

Principal Scientist, Mead Johnson Nutrition

The Impact of Milk Oligosaccharides on Brain-Gut-Microbiota Axis

- There are extensive bidirectional interactions between the gut microbiota and the central nervous system
- We tested whether oligosaccharides naturally found in human milk prevent stressor-induced alterations in gut microbial community composition
- Our study demonstrates that milk oligosaccharides support normal microbial communities and behavioral responses during stressor exposure, potentially through effects on the gut microbiota–brain axis.

11:20-11:45

LEE MADSEN II

Vice President & Chief Science Officer, ISOThrive

The Interplay of Indigenous Microbiota and Transient Probiotic Species

Focused almost exclusively on the microbiota present in the colon, most of the attention in the pro/prebiotic sector has involved either the introduction of probiotic species with the hope of transient population or feeding select microbiota with some sort of prebiotic soluble fiber. Here, we discuss the role of indigenous (autochthonous) bacterial species with respect to foreign (allochthonous) organisms, and how the interplay may be connected to states of disease in the colon and distal esophagus.

11:20-12:10

TAKE OGAWA

Director, Business Development, Second Genome

MARINA WALTHER-ANTONIO

Assistant Professor of Surgery, College of Medicine, Mayo Clinic

11:45-12:10

MELANIE GAREAU

Assistant Professor, University of California, Davis

Gut Feelings: The developing microbiota-gut-brain axis in mice

- Intestinal dysbiosis may be leading to changes in mood and behaviour
- Probiotics may restore the microbiota and prevent dysfunction of the microbiota-gut-brain axis
- Identifying the developmental window during which the microbiota-gut-brain axis is vulnerable to long term detrimental impacts

11:45-12:10

TIFFANY WEIR

Associate Professor, Colorado State University

PreForPro: A phage-based therapy for modifying the gut microbiota

- Background on phage therapy and potential use as a dietary supplement
- Description of the PreForPro clinical trial
- Interpretation of phage-induced changes to the gut microbiota and in physiological clinical parameters

12:10-12:40

SPONSORED PRESENTATION: CHERYL CHOW

Bioinformatics Scientist, Second Genome

Second Genome Solutions, the premier microbiome profiling provider, has completed over 350 microbiome studies to date for researchers in academia, and pharma/biotech, nutrition and skincare companies. Our Microbiome Discovery Platform of validated analysis and bioinformatics methods has been expertly developed to deliver the most complete and reliable microbiome insights.

12:10-12:40

SPONSORED PRESENTATION: MICHIEL WELS

Expertise Group Leader Microbiomics, NIZO

Predict & Connect: Controlling microbial composition through expertise driven identification of microbiome modulators

NIZO's Connect and Predict modules have been developed to identify microbiome modulators based on expert knowledge, consisting of a set of algorithms and databases with dedicated modules constructed for processes related to health issues (e.g. toxin/virulence, antibiotic resistance, malodour formation, dryness) together with modules for the detection of easily accessible modulators (e.g. carbon source or amino acid metabolism pathways). The combination of these modules called Connect can be regarded as the expert input required for the identification of new microbiome modulators. Overall, the Predict analysis would increase the quality of the predicted modulators, resulting in less compounds to include in in vitro validation studies. Next to being high quality modulators, the mode of action of a designed modulator will be described on the molecular level, providing a unique IP position. In the presentation we will showcase examples of the Connect & Predict modules for skin, gut and women's health

12:10-12:40

SPONSORED PRESENTATION: BRAD SAVILLE

Chief Science Officer & Founder, Prenexus Health

Why Selectivity is Critical for Prebiotics: Clinical Developments in Prebiotics & Xylooligosaccharides

- Importance of selectivity in prebiotics
- Understanding differences among prebiotic types
- Xylooligosaccharides & selectivity
- Scientific developments in prebiotics

12:40-12:55

COMPANY SHOWCASE: AARON DEL DUCA

Vice President of Technology, DNA Genotek

In Vivo Veritas: Curating massive amounts of biological material and phenotypic data for efficient and reproducible microbiome discovery

Over 100 microbiome-centred therapeutics programs are currently moving through pre-clinical and clinical development. Venture and industry investment in the field has topped $1B in the past 5 years. Over that same period, academic research funding has seen compound growth of 20% per year! Of these enormous inputs, what proportion has generated real

12:40-12:55

SPONSORED PRESENTATION: BENJAMIN LELOUVIER

Chief Science Officer, Vaiomer

Analysis of the blood microbiome by highly sensitive 16S Metagenomic Sequencing: a new tool for diagnosis

- Specific pipelines of qPCR and 16S targeted metagenomic sequencing were optimized to analyze blood bacterial DNA.
- Highly diversified blood microbiome exists in healthy human donors.
- Specific alterations in the blood microbiota are diagnostic of metabolic diseases.

12:40-12:55

SPONSORED PRESENTATION: PERNILLE MYERS

Bioinformatics Specialist, Clinical-Microbiomics

Tracking probiotic strains in the gut microbiome using single nucleotide variants

Tracking colonization of probiotic strains in the gut microbiome requires the ability to distinguish ingested probiotic strains from endogenous strains of the same species. Therefore, we have developed a method to determine the relative abundance of different strains based on the identification of discriminative single nucleotide variants (SNVs). The method can be used to:

- Determine colonization potential and persistence of probiotic strains.

12:40-12:55

insight and how much of this output is noise? DNA Genotek's customers comprise a community of leading investigators who have collected hundreds of thousands of biological samples in a standardized way. Their data can be robustly aggregated, their clinical trials can be meaningfully compared and their results can be reproduced. This short talk will highlight solutions DNA Genotek has deployed for its customers conducting population-scale research and delivering Direct-to-Consumer insights.
We make curating massive amounts of biological material and phenotypic information scalable and reproducible.

DNA genotek

12:40-12:55

Continued

12:40-12:55

- Filter noise from closely related strains, thereby refining correlations between health markers and the abundance of probiotic strains.

clinical microbiomics

12:55-1:55 | Room: Sunset Ballroom 3&5 | Lunch / Scheduled One-to-One Meetings

Room: Mission Bay

1:55-2:20

SERGIO BARANZINI

Professor, Department of Neurology, University of California, San Francisco

Exploring the structure and function of the gut microbiome in multiple sclerosis

- Largest study in MS microbiome under way
- Preliminary data shows moderate but consistent dysbiosis in MS patients
- Bioinformatics, in-vitro and in-vivo studies suggest the MS gut microbiome plays a role in disease pathogenesis

2:20-2:45

ILANA BRITO

Assistant Professor, Department of Biomedical Engineering, Cornell University

Transmissible Components in the Microbiome

The horizontal transfer of genes between bacteria is the main mechanism by which antibiotic resistance spreads, yet little is known about this process in the human microbiome. "Flexible" DNA, or the portion of the genome that has been horizontally acquired, allows bacteria to rapidly adapt to changing environmental conditions by incorporating novel functions. Studying horizontally transferred DNA presents several challenges, especially in the context of short-read sequencing. I will discuss how we have overcome some of these challenges to characterize the mobile genetic content of genomes in populations around the globe and also important clinical populations.

Room: Dockside

1:55-2:20

ERIK SPEK

Vice President – Head of Intellectual Property, Vedanta Biosciences

Patenting Microbiome Therapeutics

- Categories of microbiome therapeutics
- Patent prosecution and the 101 hurdle
- Strategies for patenting microbiome therapeutics

2:20-2:45

NIKOLE KIMES

Co-Founder & Vice President, Siolta Therapeutics

Next Generation Microbial Therapeutics - Transforming the Therapeutic Landscape of Asthma and Atopy

Siolta Therapeutics is an early-stage biotech pursuing next generation microbial therapeutics aimed at the prevention and treatment of inflammatory diseases. Our current research and development is focused on the rational design of a mixed-species therapeutic microbial consortium to treat airway inflammation. We are concurrently working towards a future in which the microbiome can help drive patient stratification and tailored microbial therapeutics.

Room: Garden

1:55-2:20

MACIEJ CHICHLOWSKI

Principal Scientist, Mead Johnson Nutrition

The Dietary Prebiotics polydextrose and galactooligosacchrides Impact the Microbiome and Brain of Developing Animals

- Optimal development of the microbiome is an emerging health benefit and is only more likely to grow in awareness and demand from a consumer perspective over time
- Modulating gastrointestinal bacteria during a critical period can result in demonstrable changes in brain development, neurotransmitter systems, and expression of anxiety-like behaviors
- The objective of this study was to determine the impact of polydextrose (PDX) and galactooligosaccharides (GOS), during early postnatal development on cognition, social, and anxiety-related behaviors, and gut microbiota in rodents.

2:20-2:45

MONIQUE LACROIX

Professor & Director, Research Laboratories in Sciences, INRS-Institut Armand-Frappier, Canada

Cancer Preventive Effect of a Probiotic Fermented Milk containing L. Acidophilus CL1285, L. Casei LBC80R, L. Rhamnosus CLR2

The potential of fermented milk containing three Lactobacillus strains on colon carcinogenesis was investigated. Results showed that rats supplemented with probiotic formula had significantly lowered the count of aberrant crypt (AC) and the number of aberrant crypt foci as compared to the control group ($p \leq 0.05$). Rats administrated with the fermented milk pellet were able to significantly ($p \leq 0.05$) induce the activity of quinone reductase as compared to the control group. Rats administered with the fermented milk showed a significant lower activity of β-glucuronidase ($p \leq 0.05$), a reduced activity of β-glucosidase and an induction of the activity of glutathione S-transferase ($p \leq 0.05$). These results indicate that the probiotic bacteria and the metabolite release during the fermentation process could prevent colorectal carcinogenesis.

2:45-3:15

SPONSORED PRESENTATION: PIERRE BELICHARD

CEO, Enterome

Innovative Therapies for Microbiome-related Diseases

The latest discoveries have allowed the scientific community to characterize some of the functions of the gut bacteria and the understanding of the relationship between the microbiome and human health is becoming more and more important for the development of a new generation of drugs and diagnostics. Understanding the mechanism of diseases linked to the dysfunction of the gut microbiome is at the heart of Enterome's metagenomics research platform. By studying the key molecular mechanisms of the bacteria/host interaction, Enterome develops innovative drugs and diagnostics that will provide patients with better outcomes to their diseases. Enterome has established partnerships with leading pharmaceutical companies and academic research institutes, including Johnson & Johnson Innovation/Janssen Biotech, Takeda and Abbvie in inflammatory bowel and gastro-intestinal diseases; Bristol-Myers Squibb in immuno-oncology; and the Mayo Clinic and Geisinger hospitals in metabolic disorders. Enterome is also in a 50/50 joint venture with Nestlé Health Science, called Microbiome Diagnostics Partners, focused initially on the development of novel microbiome-based diagnostics for IBD and liver diseases."

enterome bioscience

2:45-3:15

SPONSORED PRESENTATION: FANNY TENG

Senior Study Director, Metabolon

Metabolites at the Intersection between Microbiota and Host Metabolism

The gastrointestinal tract of mammals is colonized by a complex microbial community. These microbes have co-evolved with us for thousands of years and are closely linked to many aspects of human health. But, in most cases, the complex influences of microbiota on our health are not yet functionally understood. Metabolites serve as a language that mediates cross-species relationships, and Metabolon's unbiased global metabolomics approach provides a great tool to decipher the complex biological story. This talk will cover who we are and what we do and how one can best leverage this technology to address their microbiome research questions as supported by case studies.

METABOLON® Where knowing comes to life™

2:45-3:15

SPONSORED PRESENTATION

For sponsorship opportunities please contact Gavin Hambrook at gavin@globalengage.co.uk

3:15-3:40 | Room: Sunset Ballroom 3&5 | Afternoon Refreshments

3:40-4:20

PANEL DISCUSSION:

The Business of the Microbiome

- Building a business strategy and model
- Structuring successful collaborations
- Riding the wave on fundraising

MOHAN IYER
Chief Operating Officer, Whole Biome

HENRY RATH
Senior Vice President, Head of Corporate Development, Seres Therapeutics, Inc

DAVID DONABEDIAN
Co-Founder & CEO, Axial Biotherapeutics

3:40-3:55

SPONSORED PRESENTATION: NUR HASAN

Vice President, CosmosID

Accelerating Microbiome Discoveries Using Cloud Based Bioinformatics Platform

Bioinformatics is key in understanding and analyzing the microbiome big data for novel discovery, product development, evidence of utility, effects of drugs on the microbiome and vice-versa. The presentation will showcase a best-in-class cloud based bioinformatics platform to accelerate cross-disciplinary microbiome research and development, including establishing a flexible workflow and how to obtain highly confident and actionable results in microbiome analysis.

COSMOSID®

3:40-3:55

JISOO PAE

CEO, Genome & Company

Microbiome as a New Treatment Modality for Immunooncology

- Science in the field of immuno-onco-probiotics.
- Genome and Company's development strategy, pipeline and development status.

3:40-4:20

MICAH MACKISON
Senior Vice President, Corporate Development & Strategy, Assembly Biosciences, Inc.

3:55-4:20

MARINA WALTHER-ANTONIO
Assistant Professor of Surgery, College of Medicine, Mayo Clinic

Microbiome Signature in Endometrial Cancer

- Endometrial microbiome can be used to identify patients with endometrial cancer
- Vaginal microbiome can be used as a proxy of the endometrial microbiome to identify patients with malignancy
- In search of a microbiome predictor. Can we identify patients on a carcinogenic path?

3:55-4:20

MICHELLE ALFA
CEO, AlfaMed Consulting

MSPrebiotic digestion-resistant starch is bifidogenic in middle aged and elderly adults, and reduces glucose and insulin levels in the elderly.

- As we age, systemic inflammation increases while blood glucose homeostasis and gut microbiome diversity decline. It is not known whether these issues can be reversed.
- MSPrebiotic digestion resistant starch was evaluated in a placebo-controlled, double blind clinical trial in middle aged (30-50 years old) and elderly (>70 years old) adults for prebiotic potential, and for effects on blood glucose and insulin.
- MSPrebiotic consumption led to a prebiotic effect in both age groups.
- MSPrebiotic consumption led to lower fasting blood glucose levels, insulin levels, and reduced insulin resistance in the elderly.
- MSPrebiotic may reduce insulin resistance and blood glucose levels, which are risk factors for developing Type 2 Diabetes, in predisposed populations such as the elderly.

4:20-4:45

KATRINE WHITESON
Assistant Professor, University of California, Irvine

Metabolites, Germs and People: Eavesdropping on Human Microbial Communities

Infection with a bacterial pathogen, vaccination, immune development and even taking a Tylenol does not occur in a vacuum. Humans evolved in the presence of the dynamic bacterial, fungal and viral communities that constantly inhabit our bodies, encoding the majority of unique metabolic genes. The Whiteson lab uses culture-independent metagenomics, metabolomics, and ecological statistics along with hypothesis driven, reductionist microbiology to answer questions about how individual human-associated microbial communities affect health. Several recent research projects will be presented from 1) healthy humans, 2) pre-mature infants from Children's Hospital Orange County, and 3) Cystic Fibrosis patients.

4:20-4:45

PETER LEE
Founder & Executive Chairman, Osel inc.

Restoring the Vaginal Microbiome to Prevent/ Treat Urogenital Infections

- The human vaginal microbiome is unique and important for vaginal health
- Vaginal dysbiosis is associated with common infections: bacterial vaginosis, recurrent urinary tract infection, candidiasis
- Recent data also demonstrate that the vaginal microbiome is important in In Vitro Fertilization (IVF) success rate and preterm birth risk
- Novel approaches beyond antibiotics are needed to restore the healthy vaginal microbiome in women with dysbiosis

4:20-4:45

No Presentation in this Track

4:45 Conference Close

Paradise Point Resort & Spa,
1404 Vacation Road, San Diego, CA 92109
www.paradisepoint.com

Paradise Point, San Diego's island resort, is a private 44-acre island tucked away on gentle Mission Bay, minutes from the heart of downtown San Diego and adjacent to the famous SeaWorld San Diego. This San Diego hotel located near SeaWorld features comfortable, California beach bungalow-style guest rooms amidst lush, tropical gardens and meandering lagoons. Perfect for families, weddings, groups and conferences, this Southern California resort features over 460 guestrooms, including everything from spacious suites to lanai patio and garden rooms. You're sure to relax comfortably in our tranquil bayside bungalows, featuring breezy patios with striking views.

Though the resort is home to an array of diverse dining options, Paradise Point's critically acclaimed restaurant Tidal is not to be missed. Perched above Mission Bay's shoreline, Tidal is where craft and catch converge in a thoughtful selection of local seafood, seasonal ingredients and craft beverages. The waterfront eatery has been named one of the top 10 restaurants in San Diego by Zagat and one of the top 100 in the U.S. by OpenTable.

This spa resort in San Diego also features the world-class, island-themed The Spa at Paradise Point, which offers massages and treatments for the body and face from the most exotic islands around the world, plus a salon and state-of-the-art fitness center.

There is a guaranteed rate at the venue available through Global Engage.

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Poster presentation sessions will take place in breaks. Your presentation will be displayed in a dedicated area, with the other accepted posters from industry and academic presenters.

We also issue a poster eBook to all attendees with your full abstract in and can share your poster as a PDF after the meeting if you desire (optional).

Whether looking for funding, employment opportunities or simply wanting to share your work with a like-minded and focused group, these are an excellent way to join the heart of this congress.

In order to present a poster at the forum you need to be registered as a delegate. Please note that there is limited space available and poster space is assigned on a first come first served basis (subject to checks and successful registration).

We charge an admin fee of $100 to industry delegates to present, that goes towards the shared cost of providing the poster presentation area and display boards, guides etc. This fee is waived for those representing academic institutions and not for profit organisations.

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For updates on the Microbiome R&D and Business Collaboration Congress USA 2017, plus free resources and reports, as and when our speakers authorise their release dates, check for updates at:

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